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RANGE COMMANDERS COUNCIL WHITE SANDS MISSILE RANGE NM--ETC F/G 9/2
DIRECTORY OF UNDERWATER SYSTEMS TRACKING, SCORING AND DATA PROC--ETC(U)
1981

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DIRECTORY OF UNDERWATER SYSTEMS
TRACKING, SCORING AND DATA PROCESSING
SOFTWARE

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SEP 4 1981
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UNDERWATER SYSTEMS GROUP
RANGE COMMANDERS COUNCIL

WHITE SANDS MISSILE RANGE
KWAJALEIN MISSILE RANGE
YUMA PROVING GROUND

PACIFIC MISSILE TEST CENTER
NAVAL WEAPONS CENTER
ATLANTIC FLEET WEAPONS TRAINING FACILITY
NAVAL AIR TEST CENTER

EASTERN SPACE AND MISSILE CENTER
ARMAMENT DIVISION
WESTERN SPACE AND MISSILE CENTER
AIR FORCE SATELLITE CONTROL FACILITY
AIR FORCE FLIGHT TEST CENTER
AIR FORCE TACTICAL FIGHTER WEAPONS CENTER

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20. ABSTRACT (Continue on reverse side if necessary and identify by block number) INTRODUCTION The members and associate members of the Underwater Systems Group (USG) of the Range Commanders Council (RCC) have exchanged information on the computer hardware and software configurations in use at their respective ranges and activities regularly over the years with significant success. The enormous investment made in the current inventory of application software and the increasing tendency of software to dominate hardware in systems costs indicated to the USG that an in- creased effort should be made to propagate information on existing programs in the expectation that large cost savings might accrue to the government. (over)			

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BLOCK 20 (continued):

Questionnaires were sent to all organizations represented in the USG. The information obtained from those questionnaires comprises the content of this directory.

The chapters in this directory are organized according to software program functions. Within each chapter the pages are arranged according to contributing activities in the following order:

- Kwajalein Missile Range (KMR)
- Eastern Space and Missile Center (ESMC)
- Pacific Missile Test Center (PMTTC)
- Atlantic Fleet Weapons Training Facility (AFWTF)
- Naval Air Test Center (NATC)
- Naval Undersea Warfare Engineering Station (NUWES)
- Naval Civil Engineering Laboratory (NCEL)
- Naval Underwater Systems Center (NUSC)
- Naval Coastal Systems Center (NCSC)

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DIRECTORY OF UNDERWATER SYSTEMS
TRACKING, SCORING AND DATA PROCESSING
SOFTWARE

Prepared by

UNDERWATER SYSTEMS GROUP
RANGE COMMANDERS COUNCIL

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New Mexico 88002

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INTRODUCTION

The members and associate members of the Underwater Systems Group (USG) of the Range Commanders Council (RCC) have exchanged information on the computer hardware and software configurations in use at their respective ranges and activities regularly over the years with significant success. The enormous investment made in the current inventory of application software and the increasing tendency of software to dominate hardware in system costs indicated to the USG that an increased effort should be made to propagate information on existing programs in the expectation that large cost savings might accrue to the government.

Questionnaires were sent to all organizations represented in the USG. The information obtained from those questionnaires comprises the content of this directory.

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- Naval Civil Engineering Laboratory (NCEL)
- Naval Underwater Systems Center (NUSC)
- Naval Coastal Systems Center (NCSC)

Chapter 1

UNDERWATER TRACKING PROGRAMS

TITLE: **BARSTUR - Barking Sands Tactical Underwater Range**

ABSTRACT: Track up to eight surface and underwater vehicles equipped with MK-72 tuned frequency pingers on the 50-square mile range, located to the west of Kauai, Hawaii.

APPLICATION: UNIVAC 1230

LANGUAGE: CS-1 assembly language

VINTAGE: 1967

LOCAL CATALOG NUMBER: Tech Note 3430-16-74

REMARKS:

<u>POINT OF CONTACT:</u>	Lancey Cascaden	PMTC	(805) 982-7077
	Bob Gruber	Code 3450	AV 351-7077

TITLE: **BSURE - Barking Sands Underwater Range Expansion**

ABSTRACT: Track up to four surface and underwater vehicles equipped with MK-84 phase coded pingers anywhere on the combined 50-square mile BARSTUR or 600-square mile BSURE range, located to the west of Kauai, Hawaii.

APPLICATION: UNIVAC 1230

LANGUAGE: CS-1 assembly language

VINTAGE: 1977

LOCAL CATALOG NUMBER:

REMARKS:

<u>POINT OF CONTACT:</u>	Bob Gruber	PMTC	(805) 982-7077
	Larry Anderson	Code 3450	AV 351-7077

TITLE: Generating Simulated BSURE Data

ABSTRACT: Simulates a vessel with a periodic pinger, moving in various straight paths and bends. The ping data is organized into a general format and into special BSURE data format.

APPLICATION: CDC CYBER 175

LANGUAGE: FORTRAN IV

VINTAGE: 1978

LOCAL CATALOG NUMBER: Documentation: Tech Note 3450-3-78 Deck No. S20 SIMDAT
2J780986

REMARKS: This program generates test data to be used with the BSURE Prototype Tracking Program.

POINT OF CONTACT: Larry A. Anderson PMTC (805) 982-7177
AV 351-7177

TITLE: BSURE Prototype Tracking Program

ABSTRACT: The prototype of the tracking program used at the BSURE underwater range at Kauai, Hawaii.

APPLICATION: CDC CYBER 175

LANGUAGE: FORTRAN IV

VINTAGE: 1978

LOCAL CATALOG NUMBER: Documentation: Tech Note 3450-4-78 Deck No. R15 BSURE
2J780987

REMARKS: The production tracking program was based on this FORTRAN version, and is in a UNIVAC assembly language. Some minor program modifications have been made in the production program which are not reflected in the FORTRAN program or its documentation.

POINT OF CONTACT: Larry A. Anderson PMTC (805) 982-7177
AV 351-7177

TITLE: **Hydroacoustic Tracking (Short Baseline)**

ABSTRACT: Hydroacoustic (75 kHz) three-dimensional tracking on waterborne (surface/sub-surface) objects is performed using an array (short baseline) of four orthogonal hydrophones. Eight objects can be tracked simultaneously.

APPLICATION: MODCOMP IV 35/B using a DATACOM Model 8200 interface

LANGUAGE: FORTRAN IV

VINTAGE: 1980

LOCAL CATALOG NUMBER:

REMARKS:

POINT OF CONTACT: D. L. Pearson

NUWES

(206) 396-4541
AV 744-4541

Chapter 2

IMPACT SCORING PROGRAMS

TITLE: ESSEX

ABSTRACT: Computer program ESSEX processes the measurement data from the Electronic Scoring System (ESS) on the Splash Detection Radars (SDRs) to obtain impact scores for reentry vehicles.

APPLICATION: Harris 6024/4VM computer system

LANGUAGE: FORTRAN

VINTAGE: Initiated in May 1977

LOCAL CATALOG NUMBER: None

REMARKS: None

POINT OF CONTACT: Don Strietzel

KMR

(205) 895-3850
AV 742-3850

TITLE: REDRESS

ABSTRACT: Computer program REDRESS reads the magnetic data tapes from the Electronic Scoring System (ESS) on the Splash Detection Radars (SDRs) and stores the measurements for processing by computer ESSEX.

APPLICATION: Harris 6024/4VM computer system

LANGUAGE: FORTRAN

VINTAGE: Initiated in May 1977

LOCAL CATALOG NUMBER: None

REMARKS: None

POINT OF CONTACT: Don Strietzel

KMR

(205) 895-3850
AV 742-3850

TITLE: ARIES

ABSTRACT: Computer program ARIES optimally combines an extrapolation of the multisensor trajectory with impact sensor measurements to form a multisensor impact estimate for a reentry vehicle. The sensor measurements consist of impact measurements from ALCOR (ARPA((Advanced Research Project Agency))Lincoln Observable Radar), TRADEX (Terminal Resolution and Detection Experiment), and ALTAIR (ARPA Lincoln Tracking and Instrumentation Radar), splash plume measurements from the Splash Detection Radars (SDRs), hydroacoustic impact timing system (HITS) measurements, and telemetry loss-of-signal time measurements.

APPLICATION: Harris 6024/VM computer system

LANGUAGE: FORTRAN

VINTAGE: Initiated in August 1975. Last updated in February 1980.

LOCAL CATALOG NUMBER: None

REMARKS: None

POINT OF CONTACT: Don Strietzel

KMR

(205) 895-3850
AV 742-3850

TITLE: ZSCORE2

ABSTRACT: Program ZSCORE2 computes impact location and time for a missile impacting at the Kwajalein Missile Range (KMR). The data for input to the program are obtained from Splash Detection Radars (SDRs), hydrophones, and telemetry loss of signal due to transmitter demise.

APPLICATION: CDC 6400 and CDC 7600

LANGUAGE: FORTRAN

VINTAGE: 1977

LOCAL CATALOG NUMBER: K2661

REMARKS: None

POINT OF CONTACT: Don Strietzel

KMR

(205) 895-3850
AV 742-3850

TITLE: **RVSCORE**

ABSTRACT: Program RVSCORE computes a splash point for reentry vehicles missions and computes a miss distance from a known target based upon radar inputs, RADOT inputs, or Splash Detection Radar (SDR) inputs.

APPLICATION: CDC 6400 or CDC 7600

LANGUAGE: FORTRAN

VINTAGE: 1976

LOCAL CATALOG NUMBER: K2618

REMARKS: None

POINT OF CONTACT: Don Strietzel

KMR

(205) 895-3850
AV 742-3850

TITLE: **SCORE**

ABSTRACT: Program SCORE computes a splash point of a reentry vehicle in northings and eastings and in WGS66 Coordinates from Splash Detection Radar (SDR) inputs, RADOT inputs, or radar inputs.

APPLICATION: CDC 6400 or CDC 7600

LANGUAGE: FORTRAN

VINTAGE: 1976

LOCAL CATALOG NUMBER: K2619

REMARKS: None

POINT OF CONTACT: Don Strietzel

KMR

(205) 895-3850
AV 742-3850

TITLE: ESS

ABSTRACT: The Electronic Scoring System (ESS) program accepts raw, noisy, video data from the Splash Detection Radar (SDR), and from this data produces an accurate range leading edge, and range and azimuth center of gravity.

APPLICATION: SEL 810A

LANGUAGE: Assembly

VINTAGE: 1976

LOCAL CATALOG NUMBER: K1627

REMARKS: None

POINT OF CONTACT: Don Strietzel

KMR

(205) 895-3850
AV 742-3850

TITLE: ESSX

ABSTRACT: The X-Band Electronic Scoring System (ESSX) program accepts raw, noisy, video data from the Splash Detection Radar (SDR), and from this data produces an accurate range leading edge, range center of gravity and average azimuth.

APPLICATION: SEL 810A

LANGUAGE: Assembly

VINTAGE: 1976

LOCAL CATALOG NUMBER: K1636

REMARKS: None

POINT OF CONTACT: Don Strietzel

KMR

(205) 895-3850
AV 742-3850

TITLE: **HYDRO**

ABSTRACT: Program HYDRO computes impact time and range of an reentry vehicle splash from an underwater hydrophone given a radar azimuth and range to the splash point, plus the time splash was recorded at the hydrophone.

APPLICATION: CDC 6400 or DCD 7600

LANGUAGE: FORTRAN

VINTAGE: 1976

LOCAL CATALOG NUMBER:

REMARKS: Program replaced by PROGRAM HITS, K2432.

POINT OF CONTACT: Don Strietzel

KMR

(205) 895-3850
AV 742-3850

TITLE: **HITS**

ABSTRACT: This program computes for a missile impacting the ocean surface the impact time and its standard deviation, the impact sound transmission time through seawater to hydrophones and its standard deviations, and optionally, the velocity of sound in seawater and its standard deviation.

APPLICATION: CDC 6400/7600

LANGUAGE: FORTRAN

VINTAGE: 1972

LOCAL CATALOG NUMBER: K2432

REMARKS: None

POINT OF CONTACT: Don Strietzel

KMR

(205) 895-3850
AV 742-3850

TITLE: FSSRP

ABSTRACT: FSSRP is a multistage general launcher setting angle program for small rocket operations to enable the correction of stage impact point(s) due to wind effects.

APPLICATION: CDC 6400/7600

LANGUAGE: FORTRAN

VINTAGE: 1968

LOCAL CATALOG NUMBER: S2623P

REMARKS: None

POINT OF CONTACT: Don Strietzel

KMR

(205) 895-3850
AV 742-3850

TITLE: IMTA - MILS Target Array Program

ABSTRACT: A program for computing impacts of single or multiple reentry bodies (REBs). Gives least squares adjustment of position, splash times, relative distances, miss distances, etc., from data collected on deep ocean hydrophone arrays.

APPLICATION: CYBER 74/73

LANGUAGE: FORTRAN 2189

VINTAGE: November 1980

LOCAL CATALOG NUMBER: 970

REMARKS: For quick look and post-processing of POLARIS, POSEIDON, TRIDENT, and MINUTEMAN operational launches.

POINT OF CONTACT: Donald L. Leonard

ESMC/ROA

(305) 494-7961
AV 854-7961

TITLE: **MIRP - MILS/BOA Relative Program**

ABSTRACT: This program computes the position and time of one event (impact/splash, or SOFAR bomb explosion) relative to another in the Broad Ocean Area (BOA) of the Missile Impact Location System (MILS). One Sigma confidence regions are computed for the estimated parameters.

APPLICATION: CYBER 74/73

LANGUAGE: FORTRAN 634 ASSEMBLY 0

VINTAGE: December 1977

LOCAL CATALOG NUMBER: 946

REMARKS: Project supported: POLARIS, POSEIDON. Quick-look and post-processing application.

POINT OF CONTACT: Donald L. Leonard ESMC/ROA (305) 494-7961
AV 854-7961

TITLE: **MIBC - MILS BOA Multiple Impact Program**

ABSTRACT: Program reduces data collected by Missile Impact Location System/Broad Ocean Area (MILS/BOA) hydrophones for single and multiple reentry bodies (RB). It provides least squares estimate of RB position, time for event, miss distances, relative distances between pairs of events, and associated confidence estimates.

APPLICATION: CYBER 74/73

LANGUAGE: FORTRAN 1738 ASSEMBLY 0

VINTAGE: January 1979

LOCAL CATALOG NUMBER: 905

REMARKS: Poseidon and Polaris programs for quick-look and post-processing information.

POINT OF CONTACT: Donald L. Leonard ESMC/ROA (305) 494-7961
AV 854-7961

TITLE: SPOT FIX

ABSTRACT: SPOT FIX provides the user with hyperbolic and spherical fixes when given sound velocity profile data and ping arrival time. It operates on a discrete level; no tracking is done. Although this is a general purpose program, it was developed with sonobouy fixing in mind.

APPLICATION: 1230 UNIVAC (PODAF - Barking Sands) FORTRAN IV

LANGUAGE: FORTRAN

VINTAGE: March 1980

LOCAL CATALOG NUMBER:

REMARKS:

<u>POINT OF CONTACT:</u>	A. R. Wolf	PMTIC	(805) 982-8785
	Priscilla Becker	Code 3453	AV 351-8785

TITLE: IMPACT

ABSTRACT: From a set of arrival times, measured at N bottom mounted hydrophones, of a splash or explosive activated sound source, the program computes the time and location (X-Y) of the impact from all combinations of three hydrophones.

APPLICATION: CDC 3400 (48) computer

LANGUAGE: FORTRAN

VINTAGE: 1978

LOCAL CATALOG NUMBER:

REMARKS: Marking use of weighted solutions, editing, and statistical analysis, the program computes the most likely solution to the impact source. The output includes a listing of all acceptable solutions, the optimal solutions, and statistical measures of accuracy.

<u>POINT OF CONTACT:</u>	Henry Maurais	NUSC	(401) 841-4800
			AV 948-4800

TITLE: LOCATE

ABSTRACT: Given the transit times from N (6) sound sources (coplanar) to each of three hydrophones, this program computes the depths and interhydrophone distances of the triad.

APPLICATION: CDC 3300 computer

LANGUAGE: FORTRAN

VINTAGE: Not certified for general distribution purposes

LOCAL CATALOG NUMBER:

REMARKS: The algorithm used is a least square version of a method originally attributed to Dr. Vanderkulk and published in a JUA journal. Inputs include a sound velocity profile in addition to the 3N transit times.

POINT OF CONTACT: Henry Maurais

NUSC

(401) 841-4800

AV 948-4800

Chapter 3

SURFACE AND IN-AIR TRACKING PROGRAMS

TITLE: ABCD Autotape BCD Tape Reduction Program

ABSTRACT: This program decodes the 7-track BCD tapes generated by the Autotape Electronic Positioning System. The Autotape raw data is written to 9-track magnetic tape in standard mediary binary format. The 7-track input tapes are multifile.

APPLICATION: CDC CYBER 74/73

LANGUAGE: FORTRAN 187 ASSEMBLY 0

VINTAGE: October 1978

LOCAL CATALOG NUMBER: 973

REMARKS: Offshore ship tracking for calibration purposes.

POINT OF CONTACT: Donald L. Leonard ESMC/ROA (305) 494-7961
AV 854-7961

TITLE: OPTRACK

ABSTRACT: This program accepts readings taken during a 3-D 'SAD' from each of the three theodolite stations and calculates the ship's position in range coordinates and range and bearing from a specified 3-D target. 'OPTRACK' also has the option of accepting a ship's position (determined by 3-D) and giving the resulting look angles for each theodolite station.

APPLICATION: MODCOMP IV/35B

LANGUAGE: FORTRAN IV

VINTAGE: April 30, 1979

LOCAL CATALOG NUMBER:

REMARKS: OPTRACK has built-in values for St. Croix grid using 'Sandy', 'Two Bro', and 'Sprat'; St. Croix grid using 'Sandy', 'Long Point', and 'Sprat'; or 'Roosevelt Roads Grid System'. The operator also has the option of selecting other coordinate systems and entering theodolite and backsite positions through the console typewriter.

POINT OF CONTACT: Toby Ramos AFWTF-7125 (809) 863-2000
AV 831-5314

TITLE: Autotape Tracking

ABSTRACT: Range 1/Range 2 data are acquired, corrected and transformed to range (local) coordinates in real time or post real time via digital playback.

APPLICATION: MODCOMP IV via RS232 post, using a CUBIC DM40 autotape, and a STROBE DATA Model NUWES interface.

LANGUAGE: FORTRAN IV

VINTAGE: See remarks.

LOCAL CATALOG NUMBER:

REMARKS: System presently under development; to be certified/operated by June 1981.

POINT OF CONTACT: D. L. Pearson

NUWES

(206) 396-4541
AV 744-4541

TITLE: Radar Mark 35 Tracking

ABSTRACT: Range, azimuth and elevation data are acquired, corrected and transformed to range (local) coordinates in real time.

APPLICATION: MODCOMP IV via DATACOM Model 8200 interface using ASTRODATA Syncro-to-Digital Converters.

LANGUAGE: FORTRAN IV

VINTAGE: 1980

LOCAL CATALOG NUMBER:

REMARKS: Not recommended for new applications.

POINT OF CONTACT: D. L. Pearson

NUWES

(206) 396-4541
AV 744-4541

TITLE: **TRACAR**

ABSTRACT: This program is used at the Atlantic Undersea Test and Evaluation Center (AUTEC) Range to process raw theodolite data from up to six cameras. Raw azimuth and elevation angles are corrected and position coordinates, velocity, acceleration, and trajectory angles are then computed.

APPLICATION: CDC 3400

LANGUAGE: FORTRAN

VINTAGE: 1977

LOCAL CATALOG NUMBER:

REMARKS:

POINT OF CONTACT: E. Moody

NUSC
Code 38213

(401) 841-4800
AV 948-4800

TITLE: **AERIS Real-Time Tracking Program**

ABSTRACT: Processes tracking data from two targets. Range-range position information derived from Cubic DM-40 distance-measuring equipment interfaced with the computer system is processed and converted to X-Y coordinates, speed, and heading.

APPLICATION: Digital Equipment Corporation PDP-11/35

LANGUAGE: FORTRAN and ASSEMBLY language, DEC RT-11 Version 2 operating system

VINTAGE: 1979

LOCAL CATALOG NUMBER: None (File name is AEREMS.SAV)

REMARKS: Requires special hardware interfaces.

POINT OF CONTACT: H. P. Trujillo

NCSC
Code 733

(904) 234-4495
AV 436-4495

TITLE: **AERIS Post-Run Tactical Diameter Plot Program**

ABSTRACT: Post-run plotting of AERIS* tracking data. Tracking data accumulated on magnetic tape or disk is read and processed for selectable time slices. Output is an 8-1/2" x 11" report quality plot produced on a Versatec printer/plotter.

APPLICATION: Digital Equipment Corporation PDP-11/35

LANGUAGE: FORTRAN, DEC RT-11 Version 2 Operating System

VINTAGE: 1978

LOCAL CATALOG NUMBER: None (File name is TACTD2.SAV)

REMARKS: Requires a Versatec electrostatic printer/plotter for output.

*AERIS - Automatic Electronic Range Instrumentation System, a range-range, cooperative, microwave tracking system.

<u>POINT OF CONTACT:</u> H. P. Trujillo	NCSC	(904) 234-4495
	Code 733	AV 436-4495

TITLE: **AERIS Post-Run Velocity and Distance Plot Program**

ABSTRACT: Post-run plotting of AERIS* tracking data. Tracking data accumulated on magnetic tape or disk is read and processed for selectable time slices.

APPLICATION: Digital Equipment Corporation PDP-11/35

LANGUAGE: FORTRAN DEC RT-11 Version 2 Operating System

VINTAGE: 1978

LOCAL CATALOG NUMBER: None (File name is VELDIS.SAV)

REMARKS: Requires a Versatec Electronic Range Instrumentation System, a range-range, cooperative, microwave tracking system.

*AERIS - Automatic Electronic Range Instrumentation System, a range-range, cooperative, microwave tracking system.

<u>POINT OF CONTACT:</u> H. P. Trujillo	NCSC	(904) 234-4495
	Code 733	AV 436-4495

TITLE: **AERIS Post-Run Time Slice Plot Program**

ABSTRACT: Post-run plotting of AERIS* tracking data. Tracking data accumulated on magnetic tape or disk is read and processed for selectable time slices.

APPLICATION: Digital Equipment Corporation PDP-11/35

LANGUAGE: FORTRAN, DEC RT-11 Version 2 Operating System

VINTAGE: 1979

LOCAL CATALOG NUMBER: None (File name is TIMSLC.SAV)

REMARKS: Requires a Versatec electrostatic printer/plotter for output.

*AERIS - Automatic Electronic Range Instrumentation System, a range-range, cooperative, microwave tracking system.

POINT OF CONTACT: H. P. Trujillo

NCSC
Code 733

(904) 234-4495
AV 436-4495

TITLE: **AERIS Post-Run Tracking Data Smoothing Program**

ABSTRACT: Post-run smoothing of AERIS* tracking data. Tracking data accumulated on magnetic tape or disk is read and processed for selectable time slices. Seven-second data intervals are used in a third-order least squares curve fit routine.

APPLICATION: Digital Equipment Corporation PDP-11/35

LANGUAGE: FORTRAN, DEC RT-11 Version 2 Operating System

VINTAGE: 1979

LOCAL CATALOG NUMBER: None (File name is SMTHTP.SAV)

REMARKS:

*AERIS - Automatic Electronic Range Instrumentation System, a range-range, cooperative, microwave tracking system.

POINT OF CONTACT: H. P. Trujillo

NCSC
Code 733

(904) 234-4495
AV 436-4495

TITLE: **AERIS Post-Run Track Plot Program**

ABSTRACT: Post-run plotting of AERIS* tracking data. Tracking data accumulated on magnetic tape or disk is read and processed for plotting on a 8-1/2" x 11" Versatec electrostatic printer/plotter. Plot output is report quality.

APPLICATION: Digital Equipment Corporation PDP-11/35

LANGUAGE: FORTRAN, DEC RT-11 Version 2 Operating System

VINTAGE: 1978

LOCAL CATALOG NUMBER: None (File name is WHOLE.SAV)

REMARKS: Requires a Versatec electrostatic printer/plotter for output.

*AERIS - Automatic Electronic Range Instrumentation System, a range-range, cooperative, microwave tracking system.

POINT OF CONTACT: H. P. Trujilo

NCSC
Code 733

(904) 234-4495
AV 436-4495

TITLE: **AERIS Post-Run Reference Point Plot Program**

ABSTRACT: Post-run plotting of AERIS* tracking data. Tracking data accumulated on magnetic tape or disk is read and processed for selectable time slices. Output is an 8-1/2" x 11" report quality plot produced on a Versatec printer/plotter.

APPLICATION: Digital Equipment Corporation PDP-11/35

LANGUAGE: RT-11 Version 2 Operating System

VINTAGE: 1980

LOCAL CATALOG NUMBER: None (File name is REFPLT.SAV)

REMARKS: Requires a Versatec electrostatic printer/plotter for output.

*AERIS - Automatic Electronic Range Instrumentation Systems, a range-range, cooperative, microwave tracking system.

POINT OF CONTACT: H. P. Trujillo

NCSC
Code 733

(904) 234-4495
AV 436-4495

Chapter 4

GEODETTIC DATA AND SURVEY PROGRAMS

TITLE: MCOTRAN

ABSTRACT: Program MCOTRAN is a generalized coordinate transformation routine. Input/output options are E, F, G (geodetic coordinates), A, E, R (AZ/EL, range), X, Y, Z (earth surface fixed coordinates).

APPLICATION: CDC 6400/7600

LANGUAGE: FORTRAN

VINTAGE: 1974

LOCAL CATALOG NUMBER: K2407

REMARKS:

POINT OF CONTACT: Don Strietzel

KMR

(205) 895-3850
AV 742-3850

TITLE: RCOM - SINS/ASPS NAV Data Comparison

ABSTRACT: This program compares Ship's Inertial Navigation System (SINS) data with the Acoustic Ship Positioning System (ASPS) navigation data.

APPLICATION: CDC CYBER 74/73

LANGUAGE: FORTRAN 226

VINTAGE: October 1978

LOCAL CATALOG NUMBER: 1029

REMARKS: Mainly used for analysis/accuracy studies.

POINT OF CONTACT: Donald L. Leonard

ESMC/ROA

(305) 494-7961
AV 854-7961

TITLE: **MIGP - MILS GDOP Program**

ABSTRACT: This program computes Geometric Dilution of Precision (GDOP) for events of interest by using various combinations of hydrophones internally or externally selected.

APPLICATION: CDC CYBER 74/73

LANGUAGE: FORTRAN 1163 ASSEMBLY 0

VINTAGE: April 1978

LOCAL CATALOG NUMBER: 923

REMARKS: For POLARIS and POSEIDON programs and pre-mission operations

POINT OF CONTACT: Donald L. Leonard ESMC/ROA (305) 494-7961
AV 854-7961

TITLE: **MISD - DOT Raw Data Decode**

ABST ACT: This program decodes raw data-recorded during a Deep Ocean Transponder (DOT) array survey operation from shipboard SRN-9 or BRN-3.

APPLICATION: CDC CYBER 74/73

LANGUAGE: FORTRAN 749

VINTAGE: August 1980

LOCAL CATALOG NUMBER: 1043

REMARKS: Pre-mission tasks for survey programs

POINT OF CONTACT: Donald L. Leonard ESMC/ROA (305) 494-7961
AV 854-7961

TITLE: MVPB VPRS Mini Survey

ABSTRACT: This program reduces ship geodetic and acoustic slant range data to provide an estimate of the positions of Deep Ocean Transponders (DOT) associated with Velocity and Position Recording System (VPRS) units.

APPLICATION: CDC CYBER 74/73

LANGUAGE: FORTRAN 773 ASSEMBLY 0

VINTAGE: November 1980

LOCAL CATALOG NUMBER: 1119

REMARKS: Used for launch point arrays on POSEIDON and TRIDENT programs.

POINT OF CONTACT: Donald L. Leonard ESMC/ROA (305) 494-7961
AV 854-7961

TITLE: MVPC - VPRS Range Matching

ABSTRACT: This program computes the ranges from the Acoustic Ship Positioning System (ASPS) transducer to Deep Ocean Transponders (DOT). Recorded ranges which differ from the computed ranges by no more than an input gate valve are selected as matched ranges.

APPLICATION: CDC CYBER 74/73

LANGUAGE: FORTRAN 404 ASSEMBLY 0

VINTAGE: November 1980

LOCAL CATALOG NUMBER: 1120

REMARKS: Used for launch point arrays on POSEIDON and TRIDENT programs.

POINT OF CONTACT: Donald L. Leonard ESMC/ROA (305) 494-7961
AV 854-7961

TITLE: MISG Satellite Navigation Program

ABSTRACT: This program reduces satellite navigation system data from shipboard BRN-3 or SRN-9 to provide latitude and longitude positions. The program also handles Acoustic Ship Positioning System (ASPS) range data for use in subsequent programs.

APPLICATION: CYBER 74/73

LANGUAGE: FORTRAN 923 ASSEMBLY 0

VINTAGE: CDC CYBER 74/73

LOCAL CATALOG NUMBER: 1177

REMARKS: Projects supported are POLARIS, POSEIDON, and TRIDENT launches. Program breaks up satellite pass into ship's track of 20-minute increments.

POINT OF CONTACT: Donald L. Leonard ESMC/ROA (305) 494-7961
AV 854-7961

TITLE: Weighted Baseline Least Squares Lattice Locator WBLSL

ABSTRACT: Computes the relative locations of hydrophones using Vanderkulk Survey baseline data as input.

APPLICATION: CYBER 175

LANGUAGE: FORTRAN

DATE: 1978

LOCAL CATALOG NUMBER: Tech Note 3450-7-78 Deck No. R15 WBLSLL 2J780990

REMARKS:

POINT OF CONTACT: D. VanZante PMTC (805) 982-7177
Code 3452 AV 351-7177

TITLE: **Least Squares Hydrophone Locator**

ABSTRACT: Adjusts both the survey boat locations and the hydrophone locations to obtain the best estimate of the position of the hydrophone.

APPLICATION: IBM 7094

LANGUAGE: FORTRAN

VINTAGE: 1977

LOCAL CATALOG NUMBER: Tech Note 3450-9-77 Deck No. R15 LSHL 25770980

REMARKS:

POINT OF CONTACT: D. VanZante

PMTC
Code 3452

(805) 982-7177
AV 351-7177

TITLE: **COORTR**

ABSTRACT: This program accepts as input the coordinates of any point in the vicinity of the St. Croix AFWTF and outputs the coordinates of this same point in five different coordinate systems.

APPLICATION: MODCOMP IV/35B

LANGUAGE: FORTRAN IV

VINTAGE: April 30, 1970

LOCAL CATALOG NUMBER:

REMARKS:

POINT OF CONTACT: Toby Ramos

AFWTF-7125

(809) 863-2000
AV 831-5314

TITLE: **SURV1**

ABSTRACT: This program accepts several days of 3-D data tapes recorded on site and condenses survey data onto one magnetic tape. Smoothed data is written onto another tape. This program produces a line printer listing, a condensed 3-D range tape, and a 3-D tape which serves as input to the third link.

APPLICATION: MODCOMP IV/35B

LANGUAGE: FORTRAN IV

VINTAGE: April 30, 1979

LOCAL CATALOG NUMBER:

REMARKS:

POINT OF CONTACT: Toby Ramos

AFWTF-7125

(809) 863-2000
AV 831-5314

TITLE: **SURV2**

ABSTRACT: This program accepts theodolite data and determines the position and closure. The program produces a line printer listing and a magnetic tape which serves as input to the third link.

APPLICATION: MODCOMP IV/35B

LANGUAGE: FORTRAN IV

VINTAGE: April 30, 1979

LOCAL CATALOG NUMBER:

REMARKS:

POINT OF CONTACT: Toby Ramos

AFWTF-7125

(809) 863-2000
AV 831-5314

TITLE: **SURV3**

ABSTRACT: This program accepts OPTRACT data, uncorrected array coordinates data, sound velocity/depth velocity data, and transducer depth to produce a calculated array location.

APPLICATION: MODCOMP IV/35B

LANGUAGE: FORTRAN IV

VINTAGE:

LOCAL CATALOG NUMBER:

REMARKS:

POINT OF CONTACT: Toby Ramos

AFWTF-7125

(809) 863-2000

AV 831-5314

TITLE: **Array Survey (SURVEY)**

ABSTRACT: This program is used to establish the location (position, rotation, and depth) of an array (short baseline, orthogonal array of four hydrophones). The results are used in the hydroacoustic tracking program to transform the track of an object from "array coordinates" to range (local) coordinates.

APPLICATION: MODCOMP IV

LANGUAGE: FORTRAN IV

VINTAGE: 1980

LOCAL CATALOG NUMBER:

REMARKS:

POINT OF CONTACT: D. L. Pearson

NUWES

(206) 396-4541

AV 744-4541

TITLE: **Hydrophone Survey (HYSURVEY)**

ABSTRACT: This program uses a noniterative closed form solution to calculate the positions of up to four hydrophones and calculate the track of an interrogator vehicle.

APPLICATION: DEC 11/05 Computer

LANGUAGE: FORTRAN IV and one short assembly language routine

VINTAGE: The program has successfully surveyed hydrophone positions using both simulated and actual range measurement acoustic time delay data. Certification pending.

LOCAL CATALOG NUMBER:

REMARKS: The HYSURVEY program analysis does not require prior knowledge in terms of a predetermined interrogator vehicle path and all results are exact.

POINT OF CONTACT: Boyd E. Smith

NUWES

(206) 396-4424

AV 744-4424

TITLE: **Vanderkulk Underwater Hydrophone Surveying**

ABSTRACT: Computes interhydrophone baseline and hydrophone depths with no knowledge of the location of the ship's position required.

APPLICATION: IBM 7094

LANGUAGE: FORTRAN

VINTAGE: 1977

LOCAL CATALOG NUMBER: Tech Note 3450-26-77 Deck No. R15 VUHS 2J770983

REMARKS:

POINT OF CONTACT: D. VanZante

PMTC

(805) 982-7177

Code 3452

AV 351-7177

TITLE: **MAP**

ABSTRACT: This program computes the transformation (a translation and a rotation) for mapping one set of coordinates into another given set having a one-to-one relationship.

APPLICATION: CDC 3300

LANGUAGE: FORTRAN

VINTAGE: 1975

LOCAL CATALOG NUMBER:

REMARKS: The program obtains the best transformation in a least square sense. It is used as part of a survey package to tie or transform a set of in-water coordinates to another land-based coordinate system.

POINT OF CONTACT: Henry Maurais

NUSC

(401) 841-4800
AV 948-4800

TITLE: **Baseline**

ABSTRACT: Given a set of interhydrophone distances and an initial estimate of the hydrophone coordinates (in a plane), this program generates an optimal set (in a least square sense) of coordinates for the hydrophones through an iterative process.

APPLICATION: CDC 3300

LANGUAGE: FORTRAN

VINTAGE: 1976

LOCAL CATALOG NUMBER:

REMARKS: If N hydrophones are given, then $2N-3$ (minimum) baselines are required to establish the X-Y net.

POINT OF CONTACT: Henry Maurais

NUSC

(401) 841-4800
AV 948-4800

Chapter 5

UNDERWATER SOUND PROPAGATION PROGRAMS

TITLE: MIVC - MILS Velocity Profile

ABSTRACT: Given the velocity vs. depth profile data, the program computes the average vertical (effective) velocity and ray path data for selected starting and stopping depths for either the direct signal path or the surface reflect signal path.

APPLICATION:

LANGUAGE: FORTRAN 745 ASSEMBLY 0
 FORTRAN 731 ASSEMBLY 0 (MIVP)

VINTAGE: September 1977

LOCAL CATALOG NUMBER: 916/965/1044

REMARKS: Used for POSEIDON and TRIDENT programs and pre-mission support. Program MIVF will also provide same results.

POINT OF CONTACT: Donald L. Leonard ESMC/ROA (305) 494-7961
AV 854-7961

TITLE: Underwater Sound Velocity (USV) Program

ABSTRACT: USV inputs depth vs. temperature or sound velocity via cards or a Sound Velocity Profile (SVP) tape. Outputs are a CALCOMP plot tape of the SVP and of sound ray path. An SVP tape can also be outputted.

APPLICATION: UNIVAC 1230

LANGUAGE: FORTRAN IV

VINTAGE: 1979

LOCAL CATALOG NUMBER: Tech Note 3450-31-79 Deck No. G19 USVP 03J 790018

REMARKS: Modification of NUWES SOUNDRAY program.

POINT OF CONTACT: Bruce Hill PMTC (805) 982-7077
Code 3453 AV 351-7077

TITLE: Underwater Refraction Correction

ABSTRACT: Calculates the effective sound velocity for sound paths correcting for the amount of refraction observed at Kauai, Hawaii.

APPLICATION: IBM 7094
CDC CYBER 175

LANGUAGE: FORTRAN IV

VINTAGE: 1973

LOCAL CATALOG NUMBER: Documentation: Tech Note 3430-45-73.
(The deck is included in the BSURE Prototype Tracking Program.)

REMARKS: Eleven sound velocity profiles representative of Kauai, Hawaii were used.

POINT OF CONTACT: Larry A. Anderson PMTC (805) 982-7177
AV 351-7177

TITLE: Underwater Ray Tracing and Signal Strength

ABSTRACT: A simple program for underwater ray tracing using Snell's law. Program computes signal strength, signal-to-noise ratio and hearing radius.

APPLICATION: IBM 7094, as documented.
CDC CYBER 175, available from author.

LANGUAGE: FORTRAN IV

VINTAGE: 1978

LOCAL CATALOG NUMBER: Documentation: Tech Note 3450-1-78, S14 ACOUST 2J78094

REMARKS: The ray tracing program was designed for speed to help in analysis work. It is limited in that it cannot process reflected paths, or paths reversing direction. The signal strength programs use standard methods for spreading loss, attenuation, ambient noise, etc.

POINT OF CONTACT: Larry A. Anderson PMTC (805) 982-7177
AV 351-7177

TITLE: **RAYTRA**

ABSTRACT: This program accepts card input containing velocity profile data to produce the sound ray trace plot.

APPLICATION: MODCOMP IV/35B

LANGUAGE: FORTRAN IV

VINTAGE: April 30, 1979

LOCAL CATALOG NUMBER:

REMARKS:

POINT OF CONTACT: Toby Ramos

AFWTF-7125

(809) 863-2000
AV 831-5314

TITLE: **Conductivity and Temperature vs. Depth (CTD)**

ABSTRACT: Conductivity, temperature, and pressure (depth) data are acquired and processed from which salinity and sound velocity are then calculated.

APPLICATION: MODCOMP IV using the NEIL BROWN MARK 3 CTD system or HP9825 Calculator, both using the IEEE488 I/F bus

LANGUAGE: MODCOMP IV - FORTRAN IV

VINTAGE: MODCOMP IV - 1980
HP9825 - 1978

LOCAL CATALOG NUMBER:

REMARKS:

POINT OF CONTACT: D. L. Pearson

NUWES

(206) 396-4542
AV 744-4541

TITLE: **Sound Ray Path Plot (SRPP)**

ABSTRACT: A plot of sound ray path(s) is generated from specified parameters.

APPLICATION: MODCOMP IV, using a HP7221A plotter via RS232 port

LANGUAGE: FORTRAN IV

VINTAGE: 1980

LOCAL CATALOG NUMBER:

REMARKS:

POINT OF CONTACT: D. L. Pearson

NUWES

(206) 396-4541
AV 744-4541

TITLE: **XVR6**

ABSTRACT: Program plots a sound velocity profile and the acoustic ray paths from a specified source in a two-dimensional medium and constant horizontal gradients.

APPLICATION: CDC 3400

LANGUAGE: FORTRAN

VINTAGE: 1977

LOCAL CATALOG NUMBER:

REMARKS: Inputs consist of XBT profiles (temperature vs. depth) and a standard (AUTEC) salinity profile. Computation of velocity profile is based on Wilson's Equations. Outputs include listings and magnetic tape.

POINT OF CONTACT: Henry Maurais

NUSC

(401) 841-4800
AV 948-4800

TITLE: **Acoustic Ray Path Computation Program**

ABSTRACT: The standard Navy acoustic ray path computer models FACT and NISSM II have been implemented on a general-purpose computer to make offline acoustic tables for the countermeasures evaluator hybrid computer simulation system.

APPLICATION: B-5500

LANGUAGE: FORTRAN

VINTAGE: Unknown

LOCAL CATALOG NUMBER:

REMARKS: The programs are adaptations of UNIVAC and CDC computer programs developed at other activities.

POINT OF CONTACT: Max F. Dannecker

NCSC
Code 732

(904) 234-4495
AV 436-4495

Chapter 6

OCEAN ENGINEERING PROGRAMS

Chapter 7

GRAPHICS AND DISPLAY PROGRAMS

TITLE: TACTN1

ABSTRACT: This program accepts 3-D range data recorded on site along with 'TACTURN/SPEEDAC' data recorded onboard ship. The program calculates smoothed posit, ship's head, and velocity at critical points on a tactical turn or in an acceleration/deceleration run.

APPLICATION: MODCOMP IV/35B

LANGUAGE: FORTRAN IV

VINTAGE: April 30, 1979

LOCAL CATALOG NUMBER:

REMARKS: For TACTURN: Compute drift-corrected transfer and advance at each critical point, steady turn diameter, tactical turn diameter, and steady turning speed. For SPEEDAC: Compute distance since 'COMEX', time since 'COMEX' and smoothed velocity.

POINT OF CONTACT: Toby Ramos

AFWTF-7125

(809) 863-2000
AV 831-5314

TITLE: TACTN2

ABSTRACT: This link accepts the link 1 generated data tape and the user inputs for scale factor and online/offline plot flag. The program plots the information calculated in link 1.

APPLICATION: MODCOMP IV/35B

LANGUAGE: FORTRAN IV

VINTAGE: April 30, 1979

LOCAL CATALOG NUMBER

REMARKS:

POINT OF CONTACT: Toby Ramos

AFWTF

(809) 863-2000
AV 831-5314

TITLE: **Graphics Tracking Display**

ABSTRACT: This program formats in air (radar, cinesextant) and hydroacoustic tracking data for display in plan (X,Y) and elevation/depth on a multicolor video graphics display monitor.

APPLICATION: MODCOMP IV 35/B with DATACOM 8200 interface and GENISCO model GTC 3000 graphics system

LANGUAGE: FORTRAN IV

VINTAGE: 1980

LOCAL CATALOG NUMBER:

REMARKS:

POINT OF CONTACT: D. L. Pearson

NUWES

(206) 396-4541
AV 744-4541

Chapter 8

RANGE DATA PROCESSING PROGRAMS

TITLE: ASIM - MILS Target Array Simulation Program

ABSTRACT: This program is a Monte Carlo simulation program designed to simulate complex missile impacts in Missile Impact Location System (MILS) target array. It loops through a set of logic and computations that determine if acoustic signals generated by Reentry Bodies (REBs) are masked at various hydrophones.

APPLICATION: CYBER 74/73

LANGUAGE: FORTRAN 1819 ASEMBLY 0

VINTAGE: April 1978

LOCAL CATALOG NUMBER: 752

REMARKS: Applicable to TRIDENT, POSEIDON, and MINUTEMAN programs. Used for analysis of pre-mission tasks.

**POINT OF CONTACT: Donald L. Leonard ESMC/ROA (305) 494-7961
AV 854-7961**

TITLE: Error Propagation Through Various Tracking Algorithms

ABSTRACT: Propagates variances and biases through underwater tracking algorithms (2D and 3D, hyperbolic and spherical, least squares, etc.) and plots radius of error.

APPLICATION: CDC CYBER 175

LANGUAGE: FORTRAN IV

VINTAGE: 1978

LOCAL CATALOG NUMBER: Documentation: Tech Note 3450-2-78, S14 ERRPLT 2J780985

REMARKS: The output is 8.5 x 11 plots drawn by an SD 4460 plotter

**POINT OF CONTACT: Larry A. Anderson PMTC (805) 982-7177
AV 351-7177**

TITLE: **BQFIVE**

ABSTRACT: This program reduces passive sonar data from reformatted shipboard tape, yielding statistical analyses of sensor vs. Underwater Tracking Range (UTR) track data in plot form and in statistical summaries as well as listings of ship's track and raw sensor data.

APPLICATION: MODCOMP IV/35B

LANGUAGE: FORTRAN IV

VINTAGE: April 30, 1979

LOCAL CATALOG NUMBER:

REMARKS: Totally interactive system.

POINT OF CONTACT: Toby Ramos

AFWTF-7125

(809) 863-2000
AV 831-5314

TITLE: **CMPISL (Compass Island)**

ABSTRACT: This program accepts multiple reels of 3-D range tape containing a ship's tracked data and intermittent track data on one of two target pingers mounted on a single (moored) Torpedo Recovery Boat (TRB).

APPLICATION: MODCOMP IV/35B

LANGUAGE: FORTRAN IV

VINTAGE: April 30, 1979

LOCAL CATALOG NUMBER:

REMARKS:

POINT OF CONTACT: Toby Ramos

AFWTF-7125

(809) 863-2000
AV 831-5314

TITLE: CNEWS

ABSTRACT: This program accepts a range tape of 3-D data recorded on site and prepares a magnetic tape with retagged objects. A line printer listing is generated which includes retagged data of interest.

APPLICATION: MODCOMP IV/35B

LANGUAGE: FORTRAN IV

VINTAGE: April 30, 1979

LOCAL CATALOG NUMBER:

REMARKS:

POINT OF CONTACT: Toby Ramos

AFWTF-7125

(809) 863-2000
AV 831-5314

TITLE: CNEWSI

ABSTRACT: This program accepts a 3-D range tape, tags the data, outputs a line printer listing of tagged data, and writes a 3-D format tape and/or 'CNEWS' format tape.

APPLICATION: MODCOMP IV/35B

LANGUAGE: FORTRAN IV

VINTAGE: April 30, 1979

LOCAL CATALOG NUMBER:

REMARKS:

POINT OF CONTACT: Toby Ramos

AFWTF-7125

(809) 863-2000
AV 831-5314

TITLE: DMP3D

ABSTRACT: This program lists or dumps the tagged data that was recorded on the 3-D range tape.

APPLICATION: MODCOMP IV/35B

LANGUAGE: FORTRAN IV

VINTAGE: April 30, 1979

LOCAL CATALOG NUMBER:

REMARKS:

POINT OF CONTACT: Toby Ramos

AFWTF-7125

(809) 863-2000
AV 831-5314

TITLE: DUMP

ABSTRACT: This program reads a Mark 117 Fire Control System (FCS) Data Gathering Subsystem (DGS) tape and produces a "copy" (reformatted tape) from which the bi-octal redundancy has been removed and which has been reblocked so that one physical record on the new tape contains only one logical record.

APPLICATION: MODCOMP IV/35B

LANGUAGE: FORTRAN IV

VINTAGE: April 30, 1979

LOCAL CATALOG NUMBER:

REMARKS: Reformats shipboard tape for input to SENSE and/or FIRE.

POINT OF CONTACT: Toby Ramos

AFWTF-7125

(809) 863-2000
AV 831-5314

TITLE: **EDTNLC**

ABSTRACT: This program accepts the 'NELC' data tape written by the 'ERROR' program (COMSTD, COMVDS, COMELO) and uses the error plot deck to edit the 'NELC' tape. An updated 'NELC' tape is written.

APPLICATION: MODCOMP IV/35B

LANGUAGE: FORT AN IV

VINTAGE: April 30, 1979

LOCAL CATALOG NUMBER:

REMARKS:

POINT OF CONTACT: Toby Ramos

AFWTF-7125

(809) 863-2000
AV 831-5314

TITLE: **EMLOG**

ABSTRACT: This program accepts 3-D data recorded on site along with electromagnetic (EM) log data recorded onboard ship and determines EM log errors.

APPLICATION: MODCOMP IV/35B

LANGUAGE: FORTRAN IV

VINTAGE: April 30, 1979

LOCAL CATALOG NUMBER:

REMARKS:

POINT OF CONTACT: Toby Ramos

AFWTF-7125

(809) 863-2000
AV 831-5314

TITLE: EMLOG1-2

ABSTRACT: This program prepares a confidential 556BPI plot tape for the CALCOMP 780 offline plotter. The three (3) plots made are: distance indicator vs. speed, shaft turns vs. speed, and speed indicator error vs. speed.

APPLICATION: MODCOMP IV35B

LANGUAGE: FORTRAN IV

VINTAGE: April 30, 1979

LOCAL CATALOG NUMBER:

REMARKS:

POINT OF CONTACT: Toby Ramos

AFWTF-7125

(809) 863-2000
AV 831-5314

TITLE: FIRE

ABSTRACT: This program isolates and converts certain data items from a redblocked (DUMP output) Mark 117 FCS DGS tape and creates listing for WSAT Firing Analysis Program.

APPLICATION: MODCOMP IV/35B

LANGUAGE: FORTRAN IV

VINTAGE: April 30, 1979

LOCAL CATALOG NUMBER

REMARKS:

POINT OF CONTACT: Toby Ramos

AFWTF-7125

(809) 863-2000
AV 831-5314

TITLE: **FORACS**

ABSTRACT: This program computes the actual range, adjusted range, relative bearing and true bearing from shipboard equipment to on-range targets.

APPLICATION: MODCOMP IV/35B

LANGUAGE: FORTRAN IV

VINTAGE: April 30, 1979

LOCAL CATALOG NUMBER:

REMARKS:

POINT OF CONTACT: Toby Ramos

AFWTF-7125

(809) 863-2000
AV 831-5314

TITLE: **FORSUR**

ABSTRACT: This program accepts OPTRACK data, approximate FORACS location in range coordinates, velocity and other program constants; and through an iteration procedure, a posit for a FORACS is determined.

APPLICATION: MODCOMP IV/35B

LANGUAGE: FORTRAN IV

VINTAGE: April 30, 1979

LOCAL CATALOG NUMBER:

REMARKS:

POINT OF CONTACT: Toby Ramos

AFWTF-7125

(809) 863-2000
AV 831-5314

TITLE: **HARBRT**

ABSTRACT: This program computes 'PERICAL' (periscope calibration) data which includes the relative bearing values for one or two periscopes and the true ship heading. This data is derived from theodolite optical data.

APPLICATION: MODCOMP IV/35B

LANGUAGE: FORTRAN IV

VINTAGE: April 30, 1979

LOCAL CATALOG NUMBER:

EMARKS:

POINT OF CONTACT: Toby Ramos

AFWTF-7125

(809) 863-2000
AV 831-5314

TITLE: **LISTAR**

ABSTRACT: This program accepts a 3-D range tape and lists on a line printer positions by object and array for objects that are on range.

APPLICATION: MODCOMP IV/35B

LANGUAGE: FORTRAN IV

VINTAGE: April 30, 1979

LOCAL CATALOG NUMBER:

REMARKS:

POINT OF CONTACT: Toby Ramos

AFTWF-7125

(809) 863-2000
AV 831-5314

TITLE: **SENSA**

ABSTRACT: This program isolates and converts certain data items from a reblocked (DUMP output) Mark 117 Fire Control System Data Gathering Subsystem (DGS) tape and assembles on a magnetic tape.

APPLICATION: MODCOMP IV/35B

LANGUAGE: FORTRAN IV

VINTAGE: April 30, 1979

LOCAL CATALOG NUMBER:

REMARKS: Produces input for BQFIVE program.

POINT OF CONTACT: Toby Ramos

AFWTF-7125

(809) 863-2000
AV 831-5314

TITLE: **SEAT**

ABSTRACT: This program computes the actual range, adjusted range, relative bearing, and true bearing from shipboard equipment to on-range targets.

APPLICATION: MODCOMP IV/35B

LANGUAGE: FORTRAN IV

VINTAGE: April 30, 1979

LOCAL CATALOG NUMBER:

REMARKS:

POINT OF CONTACT: Toby Ramos

AFWTF-7125

(809) 863-2000
AV 831-5314

TITLE: ERRCOM

ABSTRACT: This program produces 'SAD' test data and prepares the resulting error data for input to program 'ERRPLT'. Reference readings for each equipment are drawn from the 'SEAT' output tape and correlated with equipment readings input by cards.

APPLICATION: MODCOMP IV/35B

LANGUAGE: FORTRAN IV

VINTAGE: April 30, 1979

LOCAL CATALOG NUMBER:

REMARKS:

POINT OF CONTACT: Toby Ramos AFWTF-7125 (809) 863-2000
AV 831-5314

TITLE: ERRPLT

ABSTRACT: This program accepts the 'ERROR' output tape and produces various plots of the data generated by program 'ERRCOM'. This program has the capability to reject points by set general bounds and by deletion of individual points.

APPLICATION: MODCOMP IV/35B

LANGUAGE: FORTRAN IV

VINTAGE: April 30, 1979

LOCAL CATALOG NUMBER:

REMARKS:

POINT OF CONTACT: Toby Ramos AFWTF-7125 (809) 863-2000
AV 831-5314

TITLE: **SENSOR (MASS)**

ABSTRACT: This program performs statistical analysis on the same data sets plotted by program
'ERRPLT'.

APPLICATION: MODCOMP IV 35/B

LANGUAGE: FORTRAN IV

VINTAGE: April 30, 1979

LOCAL CATALOG NUMBER:

REMARKS:

POINT OF CONTACT: Toby Ramos

AFWTF-7125

(809) 863-2000
AV 831-5314

TITLE: **SEPTAR**

ABSTRACT: This program accepts 3-D range data or a 'CNEWS' formatted tape. Either tape
must have at least two tagged objects. The program takes this data and computes smoothed
position information on the two desired objects.

APPLICATION: MODCOMP IV/35B

LANGUAGE: FORTRAN IV

VINTAGE: April 30, 1979

LOCAL CATALOG NUMBER:

REMARKS:

POINT OF CONTACT: Toby Ramos

AFWTF-7125

(809) 863-2000
AV 831-5314

TITLE: SETERR

ABSTRACT: This program accepts card inputs containing settled error data, plots a settled error graph, and optionally outputs a line printer listing of error information for each equipment used in the exercise.

APPLICATION: MODCOMP IV/35B

LANGUAGE: FORTRAN IV

VINTAGE: April 30, 1979

LOCAL CATALOG NUMBER:

REMARKS:

POINT OF CONTACT: Toby Ramos

AFWTF-7125

(809) 863-2000
AV 831-5314

TITLE: St. Croix and S3A SRS

ABSTRACT: Software package reads a formatted St. Croix tape and S3A tape from an Antisubmarine Warfare Operations Center (ASWOC/TSC). The output is CALCOMP plots and listings of SRS errors.

APPLICATION: Systems Engineering Laboratories (SEL-32/55)

LANGUAGE: FORTRAN

VINTAGE: 1979

LOCAL CATALOG NUMBER:

REMARKS: Range tape was formatted for FORTRAN. S3A cassette was dumped to tape at a ASWOC.

POINT OF CONTACT: Daniel W. Buckner

NATC

(301) 863-4612
AV 356-4612

TITLE: P3CII and Chesapeake Test Range

ABSTRACT: Software reads Chesapeake Test Range (CTR) tape and copy of navigation data from P3CII. Output is plot and listing of navigation error.

APPLICATION: System Engineering Laboratories (SEL 32/55)

LANGUAGE: FORTRAN

VINTAGE: 1979

LOCAL CATALOG NUMBER:

REMARKS:

POINT OF CONTACT: Daniel W. Buckner NATC (301) 863-4612
AV 356-4612

TITLE: RTOUT

ABSTRACT: Program RTOUT is a program to smooth and time correlate specified in-water and radar data. Input is from the Atlantic Undersea Test and Evaluation Center (AUTEC) real-time program.

APPLICATION: CDC 3400 and SEL 32

LANGUAGE: FORTRAN

VINTAGE: 1978

LOCAL CATALOG NUMBER:

REMARKS: Data is smoothed by a user controlled least squares filter.

POINT OF CONTACT: E. Moody NUSC (401) 841-4800
Code 38213 AV 948-4800

TITLE: **AIREDT**

ABSTRACT: Program AIREDT is used at Atlantic Undersea Test and Evaluation Center (AUTEC) to read a raw radar data tape and outputs data in several tabular and tape formats. Its primary function is wild point editing of raw radar data.

APPLICATION: CDC 3400

LANGUAGE: FORTRAN

VINTAGE: 1968

LOCAL CATALOG NUMBER:

REMARKS: Primary raw radar editing programs used at the AUTEC range.

POINT OF CONTACT: E. Moody

NUSC
Code 38213

(401) 841-4800
AV 948-4800

TITLE: **CAMED**

ABSTRACT: This AUTEC program is designed for theodolite data editing. It is normally used to accomplish the initial editing before going into the final theodolite reduction program.

APPLICATION: CDC 3400

LANGUAGE: FORTRAN

VINTAGE: 1977

LOCAL CATALOG NUMBER:

REMARKS:

POINT OF CONTACT: E. Moody

NUSC
Code 38213

(401) 841-4800
AV 948-4800

TITLE: **RPVA**

ABSTRACT: Program RPVA takes uncorrected radar measurements for time, azimuth, elevation, and range as input and computes smoothed Cartesian position, velocity, and acceleration.

APPLICATION: CDC 3400

LANGUAGE: FORTRAN

VINTAGE: 1977

LOCAL CATALOG NUMBER:

REMARKS: The origin for the coordinate systems for the output need not be the same as that for input.

POINT OF CONTACT: E. Moody

NUSC
Code 38213

(401) 841-4800
AV 948-4800

TITLE: **PVATRNS**

ABSTRACT: PVATRNS gives time correlated trajectory or point parameters (position, velocity, acceleration) referenced to some origin of latitude, longitude, and height. Will compute trajectory parameters referenced to a maximum of 19 sites.

APPLICATION: CDC 3400

LANGUAGE: FORTRAN

VINTAGE: 1975

LOCAL CATALOG NUMBER:

REMARKS: The program input is from cards or tape. The tape input is expected to conform to an AUTECH standard binary format.

POINT OF CONTACT: E. Moody

NUSC
Code 38213

(401) 841-4800
AV 948-4800

TITLE: **TRACKT**

ABSTRACT: TRACKT is the AUTEK Range primary post-test in-water tracking program. Computations are based on an orthogonal X-Y-Z coordinate system and conversions to heights above sea level are made where necessary.

APPLICATION: CDC 3400

LANGUAGE: FORTRAN

VINTAGE: 1977

LOCAL CATALOG NUMBER:

REMARKS: Input to this program is the raw hydrophone data tape generated by the AUTEK real-time program.

POINT OF CONTACT: E. Moody

NUSC
Code 38213

(401) 841-4800
AV 948-4800

DATE
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-8